

CLAIMS

1 - A device for receiving and/or transmitting electromagnetic waves with radiation diversity, characterized in that it comprises, on a common substrate (3), at least one antenna of the slot type (1) formed by a closed curve, known as a slot antenna, electromagnetically coupled to a first supply line (6), and an antenna radiating parallel to the substrate (2), positioned inside the slot antenna and connected to a second supply line (7), said first and second supply lines being connected via a switching means to means for exploiting the electromagnetic waves.

2 - The device as claimed in claim 1, characterized in that the first supply line (6) is implemented in microstrip technology or in coplanar technology.

3 - The device as claimed in claim 2, characterized in that the first supply line (6) has a length between its end and the electromagnetic coupling point equal to $k\lambda_m/4$, where k is an odd integer and λ_m the guided wavelength on the supply line at the central operating frequency with $\lambda_m = \lambda_0/\sqrt{\epsilon_{r_{eff}}}$, where λ_0 is the free-space wavelength and $\epsilon_{r_{eff}}$ the effective permittivity of the line.

4 - The device as claimed in any one of the preceding claims, characterized in that the second supply line (7) is implemented in microstrip technology or by a coaxial line.

5 - The device as claimed in claim 4, characterized in that when the line is implemented in microstrip technology, a connection is made at the slot antenna between the part that is external and the part that is internal to the slot.

6 - The device as claimed in claim 5, characterized in that the connection is formed by a conducting insert 8 having a width equal to 2 to 3

times the width of the line implemented in microstrip technology.

7 - The device as claimed in either one of claims 5 and 6, characterized in that the connection is positioned in an electrical short-circuit plane for the slot.

8 - The device as claimed in any one of claims 1 to 7, characterized in that the slot antenna is formed by an annular slot of circular shape or formed by a closed curve of perimeter equal to $k'\lambda_s$ where λ_s is the wavelength in the slot at the operating frequency or a slot of polygonal shape such as a square or rectangle and k' an integer.

9 - The device as claimed in any one of claims 1 to 8, characterized in that the antenna (2) radiating parallel to the substrate is formed by a monopole or a helix operating in transverse mode.

10 - The device as claimed in claim 8, characterized in that it may comprise several slot antennas interlocking one with another.

11 - The device as claimed in any one of claims 1 to 10, characterized in that the antenna (2) radiating parallel to the substrate is positioned at the center of the slot antenna or antennas.